



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,273	06/22/2001	David W. Burns	2207/ 11315	8639
25693	7590	03/19/2007	EXAMINER	
KENYON & KENYON LLP RIVERPARK TOWERS, SUITE 600 333 W. SAN CARLOS ST. SAN JOSE, CA 95110			MEONSKE, TONIA L	
ART UNIT		PAPER NUMBER		2181

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	09/888,273	BURNS ET AL.
	Examiner	Art Unit
	Tonia L. Meonske	2181

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 08 January 2007.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1, 2, 4-10, 12-18, 20-26 and 28-30 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1,2,4-7,9,10,12-15,17,18,20-23,25,26 and 28-30 is/are rejected.
 7) Claim(s) 8,16 and 24 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 8, 2007 has been entered.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

3. Claim 25 is objected to because of the following informalities: In line 7 there appears to be a logical disconnect between "expires" and "determining". After reviewing the similarities of claim 25 with claim 1, it appears that applicant forgot to insert ";" and " after "determining". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-6, 17-22, 25-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Referring to claim 1, line 9, claim 17, line 11, claim 25, line 10, the limitation "said first starting counter" lacks an antecedent basis. It is unclear whether the first starting counter is the thread precedence counter or some other counter. Appropriate correction is required.

7. Referring to claim 2, line 2, the limitation "a first starting counter" is unclear. Is this counter the same counter as claimed in claim 1, line 9, or some other counter? Appropriate correction is required.

8. Referring to claim 5, the optional limitation of "if the value stored in the first starting counter is incremented" is introduced. However claim 1, lines 9 and 10 positively and definitely claim incrementing, where the incrementing is not optional. Then claim 5 attempts to state that the incrementing is optional based on incrementing the value stored in the first starting counter. How can the value be definitely incremented but optionally incremented? Appropriate correction is required.

9. Referring to claim 29, the optional limitation of "if the value stored in the first starting counter is incremented" is introduced. However claim 25, lines 10 and 11 positively and definitely claim incrementing, where the incrementing is not optional. Then claim 29 attempts to state that the incrementing is optional based on incrementing the value stored in the first starting counter. How can the value be definitely incremented but optionally incremented? Appropriate correction is required.

10. Claims 4, 6, 9, 10, 12-14, 18, 20-22, 26, 28 and 30 are also rejected for incorporating the defects from the claims from which they depend. Appropriate correction is required.

Claim Rejections - 35 USC § 101

11. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

12. Claims 5, 6, 29 and 30 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are not directed to a practical application that produce a useful, concrete and tangible result.

13. Referring to claim 5, in claim 1 line 6 a determining step is claimed and then at line 9 an incrementing step is claimed. Later claim 5 states that the incrementing step is optional. When the incrementing is not performed, then the final result of claim 1 is determining which lacks a tangible result as no usefulness of the instruction side starvation determination can be realized.

14. Claim 6 is rejected for incorporating the defects from claim 5.

15. Referring to claim 29, claim 25 line 7 a determining step is claimed and then at line 10 an incrementing step is claimed. Later claim 29 states that the incrementing step is optional. When the incrementing is not performed, then the final result of claim 25 is determining which lacks a tangible result as no usefulness of the instruction side starvation determination can be realized.

16. Claim 30 is rejected for incorporating the defects from claim 29.

Claim Rejections - 35 USC § 102

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

18. Claims 1, 2, 7, 9, 10, 15, 17, 18, 23, 25 and 26 are rejected under 35

U.S.C. 102(e) as being anticipated by Johnson, US Patent Application Publication No. US 2002/0138670 (Hereinafter Johnson).

19. Referring to claim 1, Johnson has taught a method of assigning thread priority comprising:

a. assigning priority to a first thread in a multi threaded processor (page 2, paragraphs [0021] and [0022], Figure 2, element 20, Figure 3, element 102, Priority is assigned to a first I/O request, or thread, based on the priority of the LUN submitting the request.);

b. loading a preliminary value to a thread precedence counter (page 2, paragraphs [0021] and [0022], The high priority counter is loaded with an initialization value of zero. For each high priority I/O request received, the High Priority counter, element 26, increments the high priority counter to a preliminary value.);

c. assigning priority to a second thread in response to expiration of said thread precedence counter (page 2, paragraphs [0021] and [0022], Figure 4, elements 156, 158, and 162, A low priority request is sent to the device driver in response to the high priority counter, or thread precedence counter, expiring.);

- d. determining if there is an indication of approaching instruction side starvation for said first thread wherein instruction fetching for said first thread would be blocked due to processing one or more instructions from another thread (Figure 4, elements 164 and 166, The starvation counter determines when I/O requests, or threads, would be blocked from being fetched by the device driver due to other I/O requests, or other threads.); and
- e. incrementing a value stored in said first starting counter in response to an indication of approaching instruction side starvation for said first thread (Figure 4, element 172).

20. Referring to claim 2, Johnson has taught the method of claim 1, as described above, and wherein said preliminary value is based on a value stored in a first starting counter associated with said first thread (Figure 3, The incremented preliminary value, determined at element 108, is based on the priority value assigned and determined at elements 102 and 104.).

21. Referring to claim 7, Johnson has taught a method of assigning thread priority comprising:

- a. assigning priority to a first thread in a multi threaded processor (page 2, paragraphs [0021] and [0022], Figure 2, element 20, Figure 3, element 102, Priority is assigned to a first I/O request, or thread, based on the priority of the LUN submitting the request.); and

- b. assigning priority to a second thread (Figure 4, element 162, A low priority request is sent to the device driver.) in response to one of a plurality of conditions being true, the conditions consisting of
 - i. if a thread precedence counter expires (Figure 4, elements 156 and 158, A low priority request is sent to the device driver if the high priority counter, or thread precedence counter, expires.);
 - ii. if processing of said first thread retires an instruction from said first thread (This element not required as it is claimed in the alternative.); and
 - iii. if there is not an indication of approaching instruction side starvation for said first thread wherein instruction fetching for said first thread would be blocked due to processing one or more instructions from another thread (This element not required as it is claimed in the alternative.).
22. Referring to claim 17, Johnson has taught a computer system comprising:
- a. a memory to store instructions for first and second threads (Figure 2, at least elements 24 and 22);
 - b. a processor including control logic coupled to said memory to assign priority between said first and second threads (Figure 2, elements 8 and 20);
 - c. a thread precedence counter coupled to said control logic (Figure 2, element 26) wherein priority is assigned to said second thread after said thread precedence counter expires (Figure 4, element 162) wherein said control logic is to determine if there is an indication of approaching instruction side starvation for

said first thread wherein instruction fetching for said first thread would be blocked due to processing one or more instructions from another thread (Figure 4, elements 164 and 166, The starvation counter determines when I/O requests, or threads, would be blocked from being fetched by the device driver due to other I/O requests, or other threads.) and to increment a value stored in said first starting counter in response to an indication of approaching instruction side starvation for said first thread (Figure 4, element 172).

23. Claims 9, 10, 15, 18, 25 and 26 have nothing over claims 1, 2, 7, 2, 17 and 2, respectively, and are therefore rejected for the same reasons as set forth in claims 1, 2, 7, 2, 17 and 2.
24. Claim 23 has nothing over claims 7 and 17 and is therefore rejected for the same reasons as set forth in claims 7 and 17.

Response to Arguments

25. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

26. Claims 8, 16 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tonia L. Meonske whose telephone number is (571)

272-4170. The examiner can normally be reached on Monday-Friday with first Friday's off.

28. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TLM



Tonia L. Meonske
March 7, 2007